Update - FDR/UPSTREAM v3.2.1

FDR/UPSTREAM Workstation/Server v3.2.1 is a significant enhancement to the UPSTREAM product. New features include:

☐ UPSTREAM Rescuer: S/390 Linux and Solaris Disaster Recovery

☐ Windows Server 2003. Full support including system state and disaster recovery.

☐ UNIX backup of device files and FIFOs.

☐ UPSTREAM Notification. UPSTREAM now supports email and SNMP notification on event success or failure and the ability to email text files.

☐ Local incremental database. This is most useful in UNIX systems where there is no archive bit for incremental determination.

☐ Novell NLM support for the built-in multi-tasking functionality currently available for UPSTREAM for Windows and UNIX

☐ A number of significant updates to the UPSTREAM Director:

- Execution from a web browser

- Restart of pending backups or restores

- File browser for all system target types

- Selection of target system from a pull down in each function window without having to enter the target system dialog.

- Access to parameter files at both the local system and the target system.

- Remote job execution.

UPSTREAM Rescuer

The UPSTREAM Rescuer is an enhancement to UPSTREAM which allows disaster recovery of select UNIX systems including S/390 Linux and Solaris.

An UPSTREAM Rescuer recovery requires first and foremost, a complete backup of the system. Typically, this is accomplished by a successful full "/*" backup which may be followed by incremental backups. UP-STREAM, starting in v3.2.1, now will include all of the information necessary for a full system recovery including device files, FIFOs, hard and symbolic links and more. If you have been running backups with prior versions of UPSTREAM, we recommend that you upgrade and perform a full backup (it may be a full merge) before counting on using the Rescuer for disaster recovery.

The Rescuer uses the single user or emergency boot facilities provided by the UNIX or Linux vendor. Then, with the operating system loaded and running on a RAM or other disk not being recovered, the disk to be recovered is created and mounted and the restore done. This avoids potentially fatal problems of writing to an active operating system disk.

It will restore the system as it was originally. This means that you have to be careful with any substantial changes in hardware. The Rescuer is a disaster recovery tool - it can't be used for system upgrades. If you are unsure whether a recovery will work, call Innovation tech support.

As operating systems are tested and certified with the UPSTREAM Rescuer, Innovation will certify disaster recovery on them. Currently, this includes SuSE's S/390 Linux and Sun's Solaris on SPARC systems.

Solaris SPARC

At disaster recovery time, you must perform the following process:

☐ 1. Boot system in single user mode from the first Solaris install CD.

```
boot cdrom -s
```

☐ 2. Configure network adapter.

For example, for adapter hme0 with an IP address of 192.168.150.117

```
ifconfig hme0 192.168.150.117 netmask 255.255.255.0 up
```

☐ 3. Configure routing if required.

Assuming your router/gateway IP address is 192.168.150.161

```
route add default 192.168.150.161 1
```

☐ 4. Check network configuration.

```
ifconfig -a
```

```
netstat -r
```

Examine ifconfig output to ensure that the network adapter is up and configured with the desired IP address and netmask.

If you configured a router/gateway, examine the netstat output to ensure that the router/gateway is defined.

☐ 5. Set TERM variable.

```
TERM=sun

export TERM
```

☐ 6. Start rpc services.

```
/etc/init.d/rpc start
```

☐ 7. Extract the FDR/Upstream Disaster Recovery image. The UPSTREAM software has to be installed and since you have the CD drive used for the operating system boot, you must get the UPSTREAM software from either and NFS or FTP server running on another machine:

- To access the tar file from an NFS Server

    - Start the NFS client.

        ```
        /etc/init.d/nfs.client start
        ```

    - Mount the directory on the NFS server.

        Assuming the IP address of the server is 192.168.150.211, the exported directory is /home, and the usdr.tar is in /home/user on the NFS server:

        ```
        mount -F nfs 192.168.150.211:/home /mnt
        ```

    - Extract the FDR/Upstream Disaster Recovery image to /tmp/fdrupstream.

        ```
        mkdir /tmp/fdrupstream
        cd /tmp/fdrupstream
        tar xvf /mnt/user/usdr.tar
        ```

    - Unmount the NFS directory.

        ```
        umount /mnt
        ```

- To access the tar file from an FTP Server

    - Create and change to directory /tmp/fdrupstream

        ```
        mkdir /tmp/fdrupstream
        cd /tmp/fdrupstream
        ```

    - Use ftp to get usdr.tar.

        ```
        ftp ip_address_of_server
        ```

        Provide user and password when prompted.

        ```
        bin
        cd directory_containing_udsr.tar
        get usdr.tar
        bye
        ```

    - Extract the UPSTREAM files:

        ```
        tar xvf usdr.tar
        ```

☐   8. Run uscfg to configure Upstream.

```
./uscfg
```

- Provide the IP address of the FDR/Upstream Host.

- Change the port numbers if required.

- Provide any other parameters required for your installation.

- Tab to the **OK** button, hit enter, and save the configuration.

- ESC+X to exit.

☐   9. Set up disk slices if required.

If you are going to restore to your existing drive(s), and do not wish to change the sizes of your existing disk slices, you can skip this step.

If you are restoring to new drives, or want to make changes to your existing disk slices, use the **format** command to set up your disks. If you have set up your backups to run the disaster recovery report script, you can use the **prtvtoc** output in the report to get the sizes of your existing disk slices.

It is important that you use the same disk slices on the same disks as listed in /etc/vfstab. If you use a different disk slice for one or more file systems, you must edit /etc/vfstab on the restored system before booting it to reflect the changes you have made.

☐   10. Create and mount file systems, or mount and empty existing file systems.

To ensure a proper disaster recovery restore, we require that all restores be done to empty file systems.

If the disk slices to be used for restore are identical to the original disk slices, you can use the *mkfs* lines from the output generated by the disaster recovery report script to recreate your file systems with the same options as the original file system.

If you copy the *mkfs* lines from the disaster recovery report into a separate file, and copy it via ftp or nfs to the system you are restoring, you can make this file executable and run it to recreate your file systems.

Please note that only UFS file systems in a disk slice can be created while booted from the Solaris CD.

If you change the size of a disk slice, or restore to a drive with geometry different from the original drive (i.e. a larger drive), it is recommended that you not use the mkfs output. Instead, use the **newfs** command with any desired options to create the file systems.

Another alternative if you are restoring to recover from a software problem to your original drive, is to mount all the existing file systems, change to the top level mount point, and use **rm -r *** to remove all the files from your existing file systems.

Sample mount commands using a top level mount point of /mnt:

```
mount /dev/dsk/c0t0d0s0 /mnt
mkdir /mnt/usr
mkdir /mnt/opt
mkdir -p /mnt/export/home
mount /dev/dsk/c0t0d0s5 /mnt/opt
mount /dev/dsk/c0t0d0s6 /mnt/usr
mount /dev/dsk/c0t0d0s7 /mnt/export/home
```
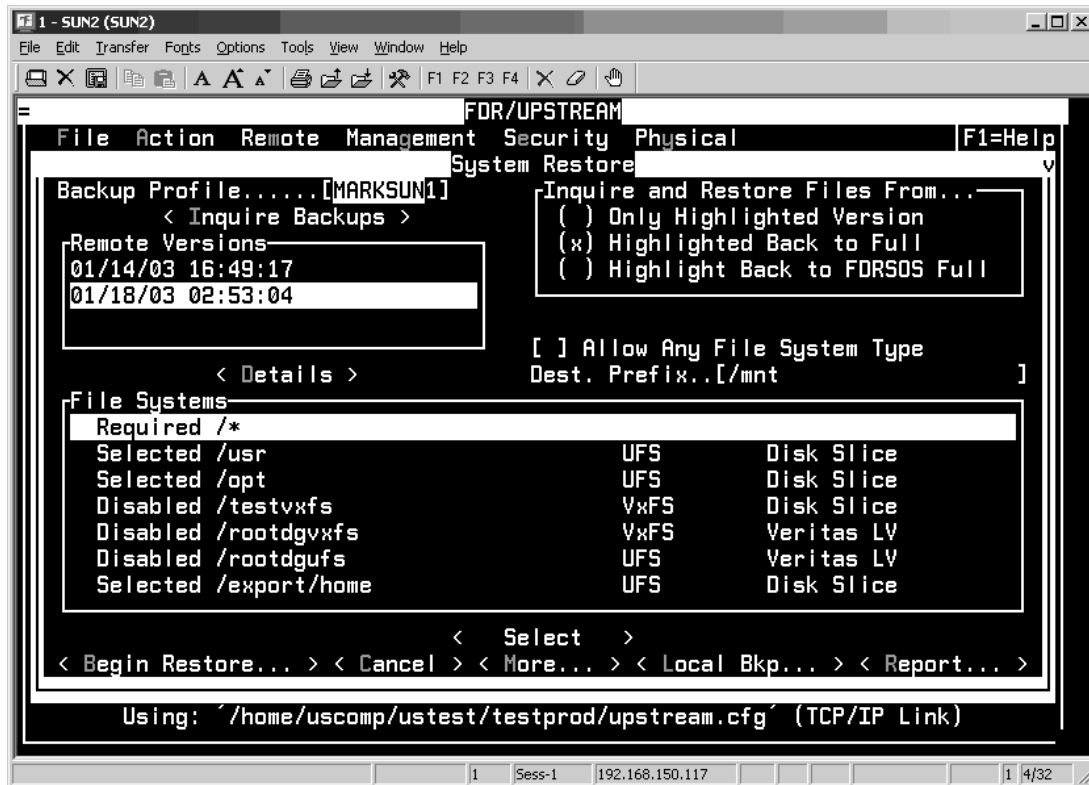
If you are using your original file systems, empty them out

```
cd /mnt
rm -r *
```

☐ 11. Start FDR/Upstream in Disaster Recovery mode.

```
cd /tmp/fdrupstream
./usdr
```

You'll need to provide the profile name, and a user/password if required. Press the **Validate** button to continue.

By default, only UFS file systems in a disk slice are enabled for restore. Veritas file systems, or UFS file systems in a Veritas Volume Manager volume or Disk Suite meta device, must be restored after booting the restored system unless you want to restore them to a disk slice with a UFS file system. Assuming you have created and mounted a file system, enable the **Allow Any File System Type** option and select the appropriate mount points.

If you do not wish to restore any of the file systems selected by default, make sure that file system is highlighted in the **File Systems** listbox and use the exclude button to exclude it.

Move to the **More** screen by pressing the More button.

If the Translation tables shown for **ASCII to EBCDIC**, and **EBCDIC to ASCII**, are not the same translation tables used for the backup, you should change the names to match the names used for the backup. If this is not done, some of the restored file names may be different. The recommended ASCII to EBCDIC translation table is **ans2atoe.tab** and the recommended EBCDIC to ASCII translation table is **ans2etoa.tab**. Press the **Ok** button to return to the System Restore screen.

Press the **Begin Restore** button and then press **Yes** to the confirmation prompt to start the restore.

☐ 12. Edit /mnt/etc/vfstab if required.

If you restored any of your file systems to a different disk slice, you must edit the restored vfstab file and update the appropriate entries with the new device names.

If you have any file systems that must be created and restored after booting the restored system, you should comment out the lines for those mounts to avoid errors when booting the system for the first time.

☐ 13. Install the boot block on the boot drive.

Use the **installboot** command to install a boot block on your boot drive.

For example, to install a boot block on c0t0d0s0, use the following command:

```
installboot /mnt/usr/platform/`uname -i`/lib/fs/ufs/bootblk /dev/rdsk/c0t0d0s0
```

☐ 14. Boot the restored system.

☐ 15. Restore Veritas file systems and UFS file systems in Veritas Volume Manager volumes or Disk Suite meta devices.

Veritas file systems, and UFS file systems in Veritas Volume Manager Volumes or Disk Suite meta devices, must be created and restored after booting the restored system.

After recreating and mounting these file systems on their original mount points, you can use FDR/Upstream's single file system restore option to restore the file systems that could not be restored while booted from the Solaris CD.

If you commented out the entries for these file systems in /etc/vfstab, you should edit /etc/vfstab to uncomment these entries.

We suggest booting the system after completing the restores, and editing /etc/vfstab, to make sure that your system comes up clean.

SuSE's S/390 Linux

At disaster recovery time, you must perform the following process:

☐ 1. Boot the SuSE starter system using the method documented in the SuSE manuals for your configuration. You must configure networking to use FDR/UPSTREAM.

For SLES 8, you must fully complete the starter system boot process by defining the installation server so the full starter system can be loaded from CD 1.

Login as root via telnet for SLES (a.k.a.k.a.7.0), or SLES 7 (a.k.a. 7.2). For SLES 8, login as root using the session type you specified. An ssh session is highly recommended.

☐ 2. Create and mount a RAM file system for installation of the FDR/UPSTREAM DR client.

```
mke2fs -vm0 /dev/ram3
mount /dev/ram3 /tmp
mkdir /tmp/fdrupstream
```

☐ 3. Extract the FDR/UPSTREAM Disaster Recovery image.

For SLES 7 (a.k.a. 7.2), you must use an NFS Server to obtain usdr.tar because the starter system does not contain the ftp command.
For the original SLES (a.k.a. 7.0), and SLES 8, you can use FTP or NFS.

- To access the tar file from an NFS Server :

  - Mount the directory on the NFS server.

    Assuming the IP address of the server is 192.168.150.211, the exported directory is /home, and the usdr.tar is in /home/user on the NFS server:

    ```
    mount -t nfs 192.168.150.211:/home /mnt
    ```

  - Extract the FDR/UPSTREAM Disaster Recovery image to /tmp/fdrupstream.

    ```
    cd /tmp/fdrupstream
    tar xvf /mnt/user/usdr.tar
    ```

    Unmount the NFS directory.

    ```
    umount /mnt
    ```

- To access the tar file from an FTP Server
  ```
  cd /tmp/fdrupstream
  ```

  - Use ftp to get usdr.tar.

    ```
    ftp ip_address_of_server
    provide user and password when prompted
    bin
    cd directory_containing_udsr.tar
    get usdr.tar
    bye

    tar xvf usdr.tar
    ```

☐ 4. Run uscfg to configure UPSTREAM.

```
./uscfg
```

- Provide the IP address of the FDR/Upstream Host.

- Change the port numbers if required.

- Provide any other parameters required for your installation.

- Tab to the OK button, hit enter, and save the configuration.   ESC+X to exit.

☐ 5. Load the DASD module for the required disk addresses.

- SLES and SLES 7

```
insmod DASD DASD=addr1,addr2,.....
```

- SLES 8

```
modprobe dasd_mod DASD=addr1,addr2,.... dasd_disciplines=dasd_eckd_mod
```

☐ 6. Format the DASD if required.

If you are using devices which have been previously formatted with dasdfmt, you can skip this step. If not, you must use the dasdfmt command as documented in the SuSE installation documentation for your release.

☐ 7. Create file systems and lvm configuration if required.

If you wish to restore to DASD by reusing the existing file systems and lvm setup, you can skip this step.

For the original SLES, and SLES 7, you may prefer to use Yast to set up your file systems and lvm configuration. If you choose to use to Yast, exit Yast by aborting the installation AFTER Yast has formatted the file systems.

For SLES 8, we recommend using the commands because Yast will not create file systems or setup your lvm configuration unless you actually start the installation. The Yast in SLES 8 also destroys the starter system and forces a reboot when exiting even if an installation was not performed.

If you have set up your backups to run the disaster recovery report script, you can use the output in the report to assist you in recreating your ext2 file systems, ext3 file systems, and lvm configuration. No information is currently reported for reiserfs or jfs file systems because neither of these file systems include a reporting tool.

The basic format and sequence of the commands to create your lvm configuration is:

- Create a physical volume - pvcreate /dev/DASD??
- Create a volume group - vgcreate vg_name /dev/DASD?? /dev/DASD?? ..
- Create a logical volume - lvcreate -L size -n lv_name vg_name

The basic format for creating file systems is:

- ext2 - mke2fs -b 4096 /dev/....
- ext3 - mke2fs -b 4096 -j /dev/....
- reiserfs - mkreiserfs /dev/....
- jfs - mkfs.jfs /dev/....

Please refer to the appropriate man pages for the above if you need to use more advanced options.

Assuming a simple configuration containing a standard disk volume with the root file system (using ext2) on /dev/dasda1, and a single physical volume volume group on /dev/dasdb1, the following commands can be used to create this configuration.

Create the ext2 file system:

```
mke2fs -b 4096 /dev/dasda1
```

Make /dev/dasdbl as physical volume:

```
pvcreate /dev/dasdb1
```

Create the myvg volume group:

```
vgcreate myvg /dev/dasdb1
```

Create a 512mb logical volume named lv01 in myvg:

```
lvcreate -L 512m -n lv01 myvg
```

Create a 512mb logical volume named lv02 in myvg:

```
lvcreate -L 512m -n lv02 myvg
```

Create an ext2 file system on logical volume lv01:

```
mke2fs -b 4096 /dev/myvg/lv01
```

Create an ext2 file system on logical volume lv02:

```
mke2fs -b 4096 /dev/myvg/lv02
```

Mount all of the volumes:

```
mount /dev/dasda1 /mnt
mkdir /mnt/myfs01
mkdir /mnt/myfs02
mount /dev/myvg/lv01 /mnt/myfs01
mount /dev/myvg/lv02 /mnt/myfs02
```

☐ 8. If you prefer to restore over your existing file systems, you must mount them and remove all existing files before restoring them with FDR/UPSTREAM.

If you are using lvm, you must first activate your existing lvm configuration:

```
vgscan
vgchange -a y
```

Assuming the same configuration as in step 7, mount your file systems:

```
mount /dev/dasda1 /mnt
mount /dev/myvg/lv01 /mnt/myfs01
mount /dev/myvg/lv02 /mnt/myfs02
```
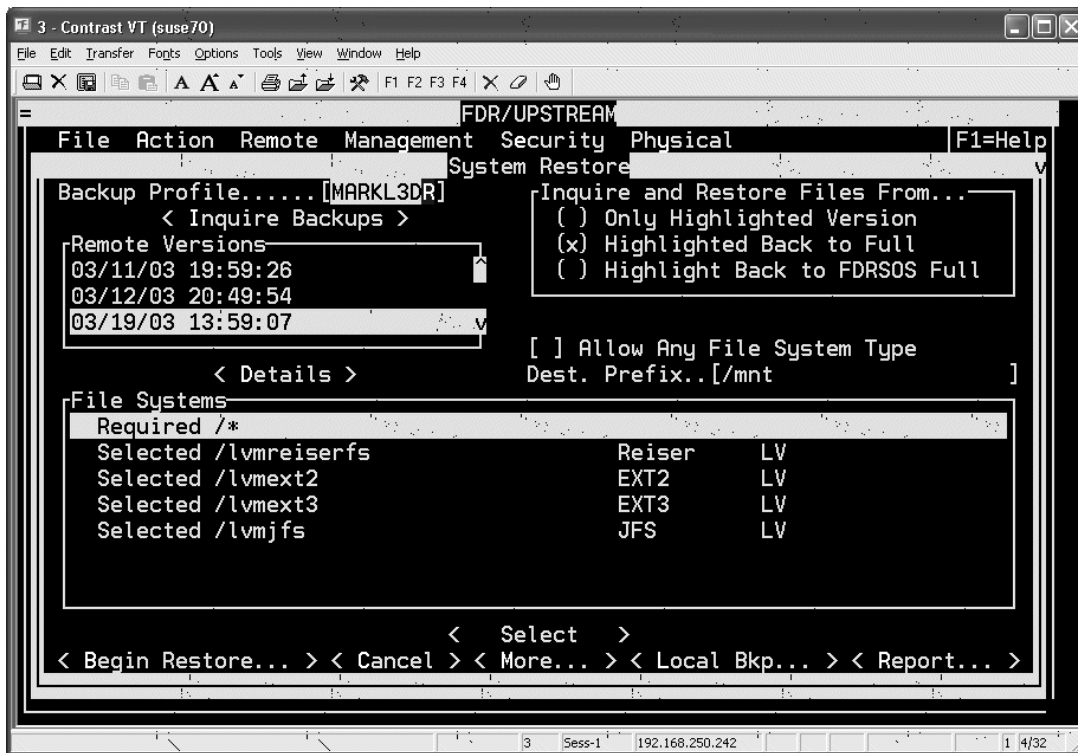
Remove all the files from these file systems:

```
cd /mnt
rm -r *
```

☐ 9. Start FDR/Upstream in Disaster Recovery mode.

```
cd /tmp/fdrupstream
./usdr
```

Provide the profile name, and a user/password if required.

If you do not wish to restore any of the file systems selected by default, make sure that file system is highlighted in the File Systems listbox and use the **Exclude** button to exclude it.

Press the **More...** button to enter the More dialog.

If the translation tables shown for ASCII to EBCDIC, and EBCDIC to ASCII, are not the same translation tables used for the backup, you should change the names to match the names used for the backup. If this is not done, some of the restored file names may be different. The recommended ASCII to EBCDIC translation table is ans2atoe.tab and the recommended EBCDIC to ASCII translation table is ans2etoa.tab.

Press the **OK** button to return to the System Restore screen.

Press the **Begin Restore** button and then press **Yes** to the confirmation prompt to start the restore.

☐ 10. Edit /mnt/etc/fstab if required.

If you restored any of your file systems to a different DASD partition, or you excluded and file systems, you must edit the restored fstab file and update the appropriate entries with the new device names.

If you have any file systems that must be created and restored after booting the restored system, you should comment out the lines for those mounts to avoid errors when booting the system for the first time.

☐ 11. Install the ipltext on the boot drive.

The ipltext must always be installed on the restored boot drive. This is required even for an existing drive that already has ipltext installed.

Assuming the same sample configuration as above, install the ipltext using the commands shown below for your version of SuSE SLES.

- For the original SLES (7.0), the silo command is used as follows:

```
chroot /mnt
cd /boot
```

If your DASD configuration differs from your original configuration, you should edit the parmfile in the /boot directory at this time to make the required changes (the silo command below is all on one line)

```
silo -d /dev/dasda -f /boot/image -p /boot/parmfile -b /boot/ipleckd.boot -B
/boot/boot.map -t2
```

```
exit
```

- For SLES 7 (7.2) with the 2.4 Kernel, and SLES 8, the zipl command is used as follows:

```
chroot /mnt
```

If your DASD configuration differs from your original configuration, you should edit the zipl.conf file in the /etc directory at this time to make the required changes. Do NOT edit the parmfile in the /boot directory. The zipl command overwrites this file with the information in /etc/zipl.conf.

```
zipl -c /etc/zipl.conf
exit
```

☐ 12. Boot the restored system.

Unmount all of the file systems you mounted above.

For SLES 8 only, you must enter and exit Yast to get the starter system to shutdown. You must also issue the shut-down command from the console used to answer the boot prompts. For SLES (7.0) and SLES 7 (7.2), you can issue the shutdown command from your telnet session.

```
shutdown -h now
```

Boot your system from the desired DASD device.

Running the Director in a Web Browser

You can now run the UPSTREAM Director in a web browser (such a Microsoft's Internet Explorer or Netscape Navigator) when served from a file server, or your existing web server.

Installation of the Director to run in a web browser is a manual operation with a supporting batch file to help setup the system. The main benefits of running in a web browser is to avoid a CD install and setup and to provide ubiquitous web access to the Director and therefore your UPSTREAM backup system.

Background Information

The Director application has been re-written to run as an applet in a browser. An applet is a program that is invoked by statements or "tags" in an HTML web page. The Director applet is actually executed by a Java Virtual Machine or "JVM" which is installed as a common browser plug-in. Your browser already has some widely used plug-ins such as ones to read Acrobat PDF files, run Flash animation, QuickTime and many more.

The JVM plug-in that may already be present in your browser however is probably not the one we require to run the Director. We require a certain level of the SUN MicroSystems JVM plug-in. This plug-in is downloaded and installed when the web page is rendered if it is not presently installed. The user has the option of not installing the plug-in, in which case the Director will not run. This is a one time installation at the user's browser.

WARNING: If the user is already running some production applets in their browser that require a certain level which is not our's, he should NOT allow the installation to proceed.

For security concerns, Innovation Data Processing has supplied a certificate or "digital signature" to protect unauthorized execution or mis-use of code. This was procured by Verisign Corporation and is embedded in the code. Upon running the code, the browser will notify the user that they are about to run code from Innovation Data Processing and asks for permission to do so. The certificate is basically assuring the user that the code is indeed from IDP and that upon granting it permission trusts it to run on his PC.

The applet version of the Director still makes all the TCP/IP socket connections that it normally would do when running as a standard application, i.e., it is using more than just port 80 to establish connections to the repository and client UPSTREAM(s). What this means is, that if your installation has a firewall and you are accessing the system from outside that firewall, you must configure or allow these connections or perhaps use some VPN software to ease this configuration for access.

Supported Systems/System Requirements

This code has been successfully tested and used on Microsoft's Windows NT 4.0, 2000 and XP using Microsoft's Internet Explorer Version 6.x and Netscape Corp.'s Netscape Version 7.x. Running on any other browser or version may not be successful. We will be expanding and testing with more platforms and browsers. We have run on Unix platforms but have not fully tested or certify it will run 100% correctly. We encourage the adventurous user to try these if necessary and would support and welcome documentation of failures or success in the endeavor.

The JVM plug-in we require for the browser comes from SUN MicroSystems and is version 1.4.1 - remember, the web page supplied will check for this on a Windows system and attempt to install it (REPLACING any existing JVM) if not present.

The code takes approx. 15megs of disk space for program files.

The user's browser should allow "cookies" to be set for best operation.

Our Software: What?, Where? and How?

The Director applet code consists of a small subset of files that are put into the UPSTREAM install directory upon installation of the Director with the product CD. Depending on how you want your user(s) to get the web HTML page which starts the Director, you will be choosing a directory to copy this subset of files to. We supply a tiny Windows batch file called "webcopy.cmd" (in the UPSTREAM install directory) to perform this for you.

Basically there are TWO ways that the HTML pages that start the Director are "served" to someone's web browser:

- Standard Web Server such as Microsoft Internet Information Server.
- From a shared drive/directory accessible from the user's PC.

Briefly, when using the first case, the user will be typing in the familiar URL format in their browser such as: "http://www.mycompany.com/scripts/Director.html" where "www.mycompnay.com" is your company's address of the web server and "scripts" is a symbolic location (or actual) of the directory containing the Director files.

In the second case they will use the format: "file://N:/cdrive/webdirector/Director.html", where "N" is a shared drive accessible to the user's PC and "cdrive/webdirector/" is the directory you have chosen to contain the Director files. UNC names may also be used to refer to the shared drive/directory.

In either case YOU must choose/create a directory for the batch file to copy the Director files to.

In both examples "Director.html" is the starting web page. We have one more page, "usdir.html" which is invoked internally by this one. The first one, "Director.html", is an introduction with information about running the Director. It IS intended for you to tailor and update in order to perhaps provide company information or additional information to the end user about running the Director in your environment.

The second one, "usdir.html", actually runs the Director and should NOT be altered.

As per the information on the first web page, after the user responds to the certificate's question about allowing the Director to run, the first thing the Director will do is check it's one and only browser "cookie". The Director when running as an applet, still needs a location for temporary files and to store user ".ini" type information or preferences. We use a single cookie to store that directory name in. When this is done the first (and only time), the user will be prompted for a location (directory) for the temporary files and preferences; that name is stored in the cookie. What this means is, the user's browser should allow cookies to be set. If it does not, the user will be prompted for a location each time the Director is run.

When running the Director as an applet, there is no upstream.cfg or upstream.dat files to read from at start up (the way it does when running as a regular application). Therefore, the Userid and Host information at the login dialog is not pre-filled the first time. Once supplied and used for a successful signon, they are of course "remembered"; no files are required.

As a reminder, the format of the Host information in the field of the logon dialog is: "IP-Address:port#" For example: "192.168.150.2:1972" or using a symbolic DNS name: "MYPRODSYS:1972"

Step By Step Install

☐ Using the UPSTREAM product install CD, install the Director component. This will also install the required JVM - the Sun Java Runtime Environment Version 1.4.1 (or JRE as it is referred to in the CD install).

☐ Choose your method of serving the HTML pages to the user(s) browser - Web Server OR shared drive/directory.

- **If using a Web Server:** ask the administrator to create or choose a designated directory.

  Proper rights and configuration to set up a directory to serve pages from is different for each vendor's Web Server. Make sure the administrator gives you write access to the absolute path name of the directory - if only temporarily just to run the copy batch script.

  Also, you MUST ask/get from the web server administrator the http URL name for this path and write this down for instructions (it will NOT necessarily be the absolute path name of the directory you will be copying the files to - do not confuse the two).

  You need the http URL name for instructions to give to your users for accessing the Director.html startup page. As shown above, an example would be: "http://www.mycompany.com/scripts/Director.html"

- **If you are using the file method:** Create or choose a directory on a shared drive which users usually have a persistent share to. As shown above, an example URL for this case would be: "file://N:/cdrive/webdirector/Director.html"

  In this example you have chosen the directory "webdirector" on the "N:" share drive. UNC names may also be used to refer to the shared drive/directory.

☐ Run the copy batch file **webcopy.cmd**. This takes one argument: the chosen directory. Open up a command prompt window on a windows PC that has the Director installed on it AND has write access to the chosen directory. Type in:

```
C:\upstream> webcopy mydirectory
```

Where: "mydirectory" is the absolute path name of your chosen directory. For a file method test, you might enter:

```
C:\upstream> mkdir \Director
C:\upstream> webcopy c:\Director
```

☐ Open up an appropriate web browser and verify installation by calling up the Director.html web page and run the Director.

If you are running with the file method following our example above you would enter in the Address field:

```
file://c:\Director\Director.html
```
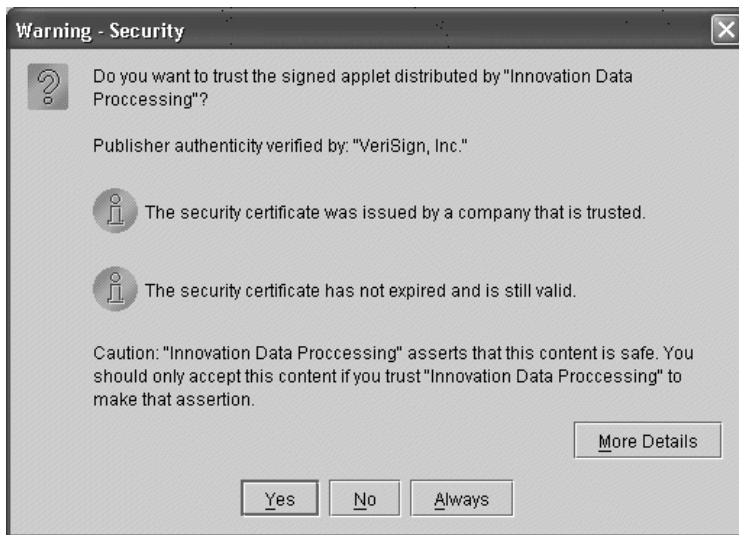
Using the Director

When you start the Director in a browser, you will see the initial director.html screen. As described above, you may want to customize this file.
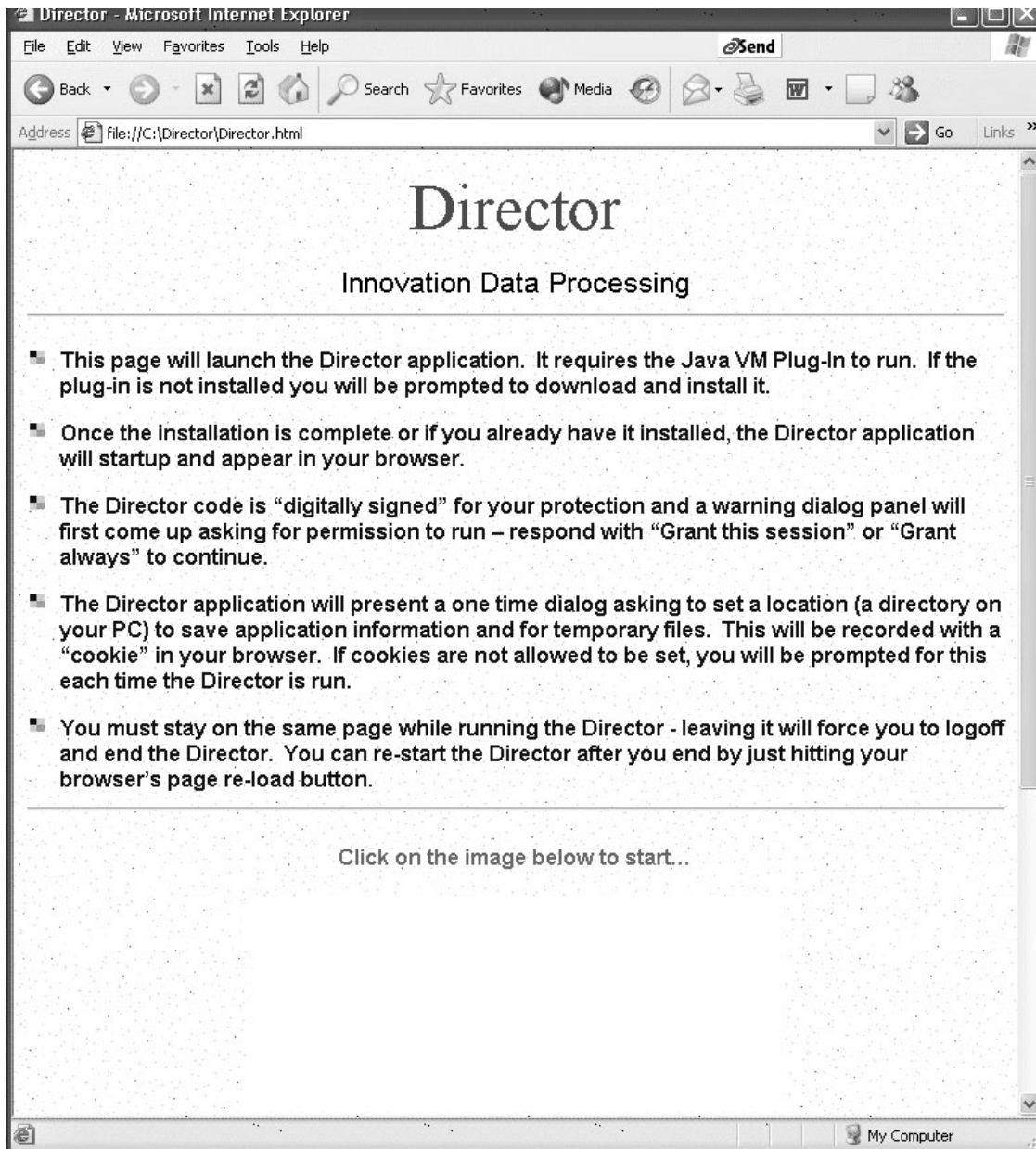
Click on the image of the IDP logo at the bottom of the window to begin.

Press the **Yes** button to allow the Director to load. You will be asked to do a one time setup:
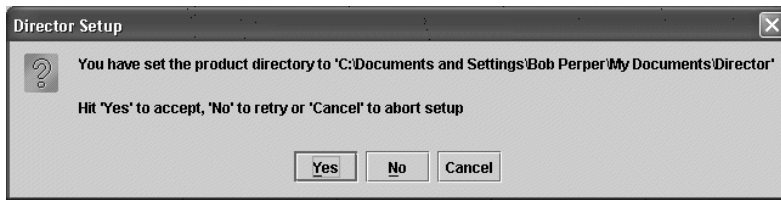

Press the **Continue...** button . You will be asked to set a directory for the Director to store its files. Most users will accept the default (determined by the browser) and press the **Set Product Directory** button.
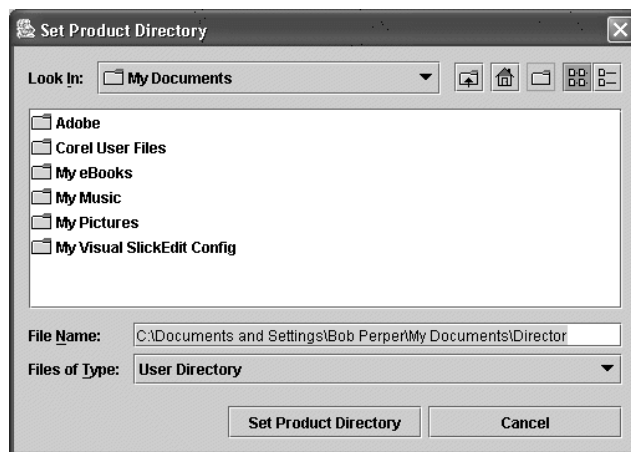
You will be asked to confirm your settings. Most users will press **Yes** to accept the settings and continue.

Director Setup

You have set the product directory to 'C:\Documents and Settings\Bob Perper\My Documents\Director'

Hit 'Yes' to accept, 'No' to retry or 'Cancel' to abort setup

Yes   No   Cancel

The Director will then start as normal. Dialogs will run as external frames but standard Director windows will run within the frame of the browser.

If you use your browser's Back button to exit the Director, the Director will display the following message box as it exits:

You Have Left The Page In The Broswer

You will be logged off the Director now

Ok
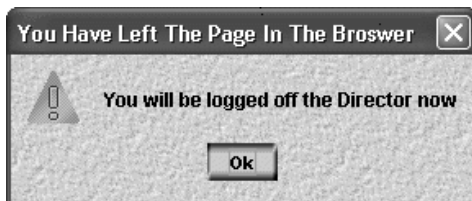
UPSTREAM Notification

UPSTREAM now has the capability of sending Email and SNMP Trap notifications. By configuring your backups and restores to send notifications of specific events, you can add another valuable management tool to your data management tasks.
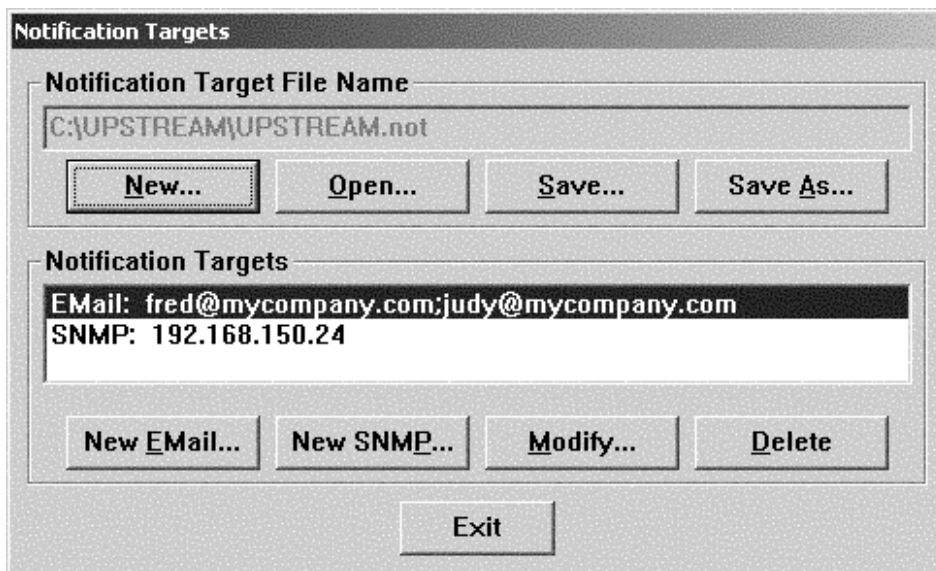
Notification Target Files

Notification is accomplished by defining the notification type (Email or SNMP) and the destination users in a notification target file. When you specify the action (backup, restore, etc.), you then specify the notification target file name along with the status (success or failure) and attachments (log or report).

A notification target file is a simple text file with a default extension of .not that contains the specifications of one or more EMAIL and/or SNMP targets. A notification target file can be specified for any action that UPSTREAM can perform so that notifications for events associated with that action may be sent to the targets defined in the notification target file.

A set of dialogs in the FDR/UPSTREAM US.EXE (**FDR/UPSTREAM Local** in Windows) and **us** (UNIX) is used to create, modify or delete notification target files.
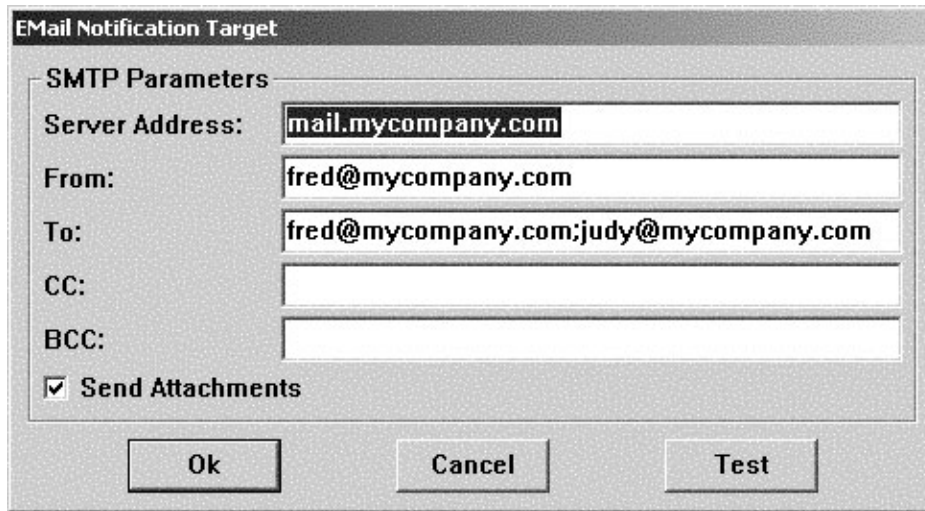
To enter the notification target facility, pull down the **Remote** menu and select **Notification Targets**:

The upper frame (Notification Target File Name) displays the name of the currently active notification target file name along with a number of buttons relating to the file. The New button is used to create a new notification target file and the **Open** button is used to open an already existing notification target file. The **Save** button is used to save the notification target information to the file specified in the Notification Target File Name field. And the **Save As** button is used to save the notification target information to a different notification target file.

To create a new EMAIL notification target click the **New EMAIL** button. To create a new SNMP notification target click the **New SNMP** button. To modify the currently selected notification target, either double-click the entry or click the **Modify** button. To delete the currently selected notification target, click the **Delete** button.

When the **New EMAIL** button is clicked or the **Modify** button is clicked for an EMAIL notification target, the EMAIL Notification Target dialog is displayed:
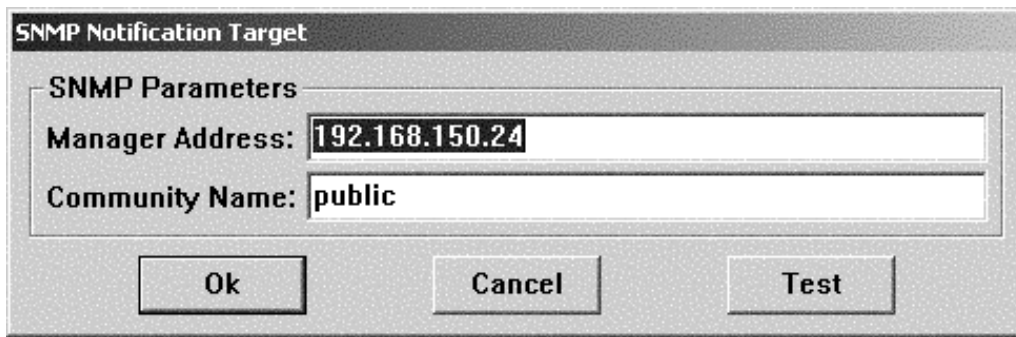
```
EMail Notification Target
┌─ SMTP Parameters ──────────────────────────────────┐
│                                                     │
│  Server Address:   mail.mycompany.com               │
│                                                     │
│  From:             fred@mycompany.com               │
│                                                     │
│  To:               fred@mycompany.com;judy@mycompany.com │
│                                                     │
│  CC:                                                │
│                                                     │
│  BCC:                                               │
│                                                     │
│  ☑ Send Attachments                                 │
│                                                     │
│     [ Ok ]          [ Cancel ]        [ Test ]      │
└─────────────────────────────────────────────────────┘
```

The fields on this dialog are:

☐ **Server Address:** The IP address or DNS name of a SMTP (Email) server that the EMAIL is to be sent through.

☐ **From:** An EMAIL address that is authorized to send Emails.

☐ **To:** One or more EMAIL addresses separated by semicolons (;) that will receive the EMAIL notifications.

☐ **CC:** Zero or more EMAIL addresses separated by semicolons (;) that will receive a Carbon Copy of the EMAIL notifications.

☐ **BCC:** Zero or more EMAIL addresses separated by semicolons (;) that will receive a Blind Carbon Copy of the EMAIL notifications.

☐ **Send Attachments:** Check this check box to have attached files sent to these recipients. If this check box is not checked attachments will not be sent with the EMAIL notifications.

You can click the **Test** button to get a fast confirmation that the information that you specified is correct. When clicked, the **Test** button causes a test EMAIL to be sent to the specified recipients.

For SNMP notification (not Email) , when the **New SNMP** button is clicked or the **Modify** button is clicked for an SNMP notification target, the SNMP Notification Target dialog is displayed:

```
┌─────────────────────────────────────────────────────────────┐
│ SNMP Notification Target                                      │
│  ┌─ SNMP Parameters ──────────────────────────────────────┐  │
│  │ Manager Address: │192.168.150.24                    │   │  │
│  │ Community Name:  │public                            │   │  │
│  └────────────────────────────────────────────────────────┘  │
│       ┌──────────┐      ┌──────────┐      ┌──────────┐        │
│       │    Ok    │      │  Cancel  │      │   Test   │        │
│       └──────────┘      └──────────┘      └──────────┘        │
└─────────────────────────────────────────────────────────────┘
```

☐ **Manager Address:** The IP address or DNS name of a SNMP manager that the SNMP trap is sent to.

☐ **Community Name:** The name of the SNMP community that is required by the SNMP manager.

You can click the **Test** button to get a fast confirmation that the information that you specified is correct. When clicked, the Test button causes a test SNMP Trap to be sent to the specified SNMP manager.

Notification Events

Once a notification target file has been created with one or more notification targets, it can be specified for any action that UPSTREAM can perform. The name of the notification target file to use is specified with the **NOTIFYTARGETS** parameter.

Before UPSTREAM can use a notification target file, the events for which notifications will be sent must be specified. The **NOTIFYEVENTS** parameter is used to specify which events will trigger notification messages to be sent to the various notification targets specified in the notification target file.

The **NOTIFYTARGETS** and **NOTIFYEVENTS** parameters are set from the **Notification Events** dialog:

The **Notification Events** dialog can be reached from a number of UPSTREAM dialogs such as the Backup Parameters and Restore Parameters dialogs along with others. Just find the Notify button and click it.

The fields on this dialog are:

☐ **Target File Name:** The name of a notification target file (created in the Notification Targets dialog). Press the Browse button to help you find an already configured notification target file.

The **Send Notification When** options include:

☐ **An Action Fails:** Check this check box to be notified of any failed action. This item is checked by default.

If you check this option the following two checkboxes are enabled:

- **Attach Log:** If you check this box the relevant portion of the UPSTREAM log will be attached to the notification message for a failed action. Only EMAIL notification targets can receive attachments and only if they are configured to receive them.

- **Attach Report:** Check this check box to have the relevant portion of the UPSTREAM report attached to the notification message for a failed action. Only EMAIL notification targets can receive attachments and only if they are configured to receive them.

Along with the following edit field:

- **Attach File:** If you wish, any user defined text file can be transmitted as an attachment with this notification. Specify the fully qualified file name here.

☐ **An Action Succeeds:** Check this check box to be notified of any successful action. If you check this box, there are similar checkboxes for Attach Log and Attach Report along with Attach File as for the Action Fails option (above).

☐ **An Error Message:** Check this check box to have UPSTREAM error messages trigger a notification.

☐ **A Warning Message:** Check this check box to have UPSTREAM warning messages trigger a notification.

☐ **An Informational Message:** Check this check box to have UPSTREAM informational messages trigger a notification.

WARNING: Selecting notification for Error, Warning or Informational messages may result in an excessive number of notifications.

Remote Initiated Notification

When you specify a MVS or other remote initiated request, you can also request notification using the following two non-repeating UPSTREAM parameters. These parameters go with the other client non-repeating parameters such as ACTION.

Parameter Name	Default	Required	Description
NOTIFYEVENTS	769	No	If a NOTIFYTARGETS parameter is specified, the conditions in which a notification will occur. This is a bit map, where you add the notification values: 1 : Notify if the action failed 2 : Notify if the action succeeded 4 : Notify for any errors 8 : Notify for any warnings 16 : Notify for any informational messages 256: Attach the log if the action failed and value 1 is specified. 512: Attach the report if the action failed, value 1 is specified and reporting is enabled. 1024: Attach the log if the action succeeded and value 2 is specified. 2048: Attach the report if the action succeeded, value 2 is specified and reporting is enabled.
NOTIFYFAILUREATTACHMENT	None	No	The file name to send if a file should be attached on operation failure. You must also specify a NOTIFYTARGETS file.
NOTIFYSUCCESSATTACHMENT	None	No	The file name to send if a file should be attached on operation success. You must also specify a NOTIFYTARGETS file.
NOTIFYTARGETS	None	No	The name of the notification targets file name if you wish to enable notification.

For example, if you wish to backup a complete Windows system with the backup profile SERVER, and notify the users specified in the notification file upstream.not when the backup failed, your batch job might look like:

```
ACTION 1
BACKUPPROFILE SERVER
```

```
MERGE 1
NOTIFYTARGETS upstream.not
NOTIFYEVENTS 769
SPEC \\.
```

Email Messages

If you enable Email messages for successful or failed actions, UPSTREAM will generate Email text and attach the log and report if you request it. The following is a sample message from a failed backup:

```
Date: Mon, 02 Dec 2002 17:26:18 -0400
From: <user@company.com>
To: <user@company.com>
Subject: Backup failed
X-RCPT-TO: user@company.com

This message was automatically generated by the FDR/UPSTREAM Client application pro-
duced by Innovation Data Processing, Inc. Please do not reply to this message as your
reply will most likely be discarded.

The application issued message #2053:
2053D Backup failed

Additional information:
Error in receive started
Variable: BACKUPPROFILE = "PROFILE"
Variable: VERSIONDATE = ""
Variable: MACHINENAME = "MACHINE"
Variable: USERNAME = "user"
Attached file: C:\UPSTREAM\ACTION.1296.log

Content-type: text/plain; charset="iso-8859-1" name="ACTION.1296.log"
Content-disposition: attachment; filename="ACTION.1296.log"
```

If you enable notification messages for error, warning and informational messages, you will get a notification for each message logged (which may result in lots of notifications). For example, if you had enabled informational message notification, the message indicating a backup had started would result in the following notification:

```
Date: Mon, 02 Dec 2002 14:28:24 -0400
From: <user@company.com    >
To: <user@company.com>
Subject: FDR/UPSTREAM Informational Message
X-RCPT-TO: user@company.com

This message was automatically generated by the FDR/UPSTREAM Client application pro-
duced by Innovation Data Processing, Inc. Please do not reply to this message as your
reply will most likely be discarded.

The application issued message #2050:
Msg #PC2050I Backup started (First-time full)
```

```
Additional information:
Profile: PROFILE, UPSTREAM v3.2.0b (Win NT)
```

Notification File Contents

A notification file is a simple text file in the TITLE=VALUE format. You can have multiple groups of systems to notify within a single notification file, each group of systems begins with the keyword TARGETTYPE. Other keywords can be placed arbitrarily within a group.

Title	Type	Value
BCCADDRESSES	Email	A list of 0 or more semicolon separated blind, carbon-copy Email addresses. Optional, no default.
CCADDRESSES	Email	A list of 0 ore more semicolon separated carbon-copy Email addresses. Optional, no default.
COMMUNITYNAME	SNMP	The name of the SNMP community required by the SNMP manager. Required.
FROMADDRESS	Email	The Email source address. Required.
SENDATTACHMENTS	Email	Y or N to indicate whether attachments should be sent to this set of addresses. Optional, no default.
SNMPMANAGERADDRESS	SNMP	The IP address or DNS name of a SNMP manager that the SNMP trap is sent to. Required
SMTPSERVERADDRESS	Email	The IP address or DNS name of a SMTP (Email) server that the Email is to be sent through. Required
TARGETTYPE	-	0 for Email and 1 for SNMP. Required
TOADDRESS	Email	One or more EMAIL addresses separated by semicolons (;) that will receive the Email notifications. Required

The following is an example of a notification target file:

TARGETTYPE=0
SMTPSERVERADDRESS=mail.mycompany.com
FROMADDRESS=fred@mycompany.com
TOADDRESSES=fred@mycompany.com;judy@mycompany.com
CCADDRESSES=
BCCADDRESSES=
SENDATTACHMENTS=Y
TARGETTYPE=1
SNMPMANAGERADDRESS=192.168.150.24
COMMUNITYNAME=public

SNMP Considerations

If you plan on sending SNMP Trap notifications to one or more SNMP managers, referred to as Network Management Systems or NMSs, you will need to perform some SNMP configuration work before the NMS will be able to properly interpret the SNMP Trap notifications that UPSTREAM will send. In the \UP-STREAM\WIN32 directory of the FDR/UPSTREAM CD are two files: **idp.mib** and **usclient.mib**. These two files are MIB source files that need to be incorporated into the MIB database for your NMS system.

The process of incorporating idp.mib and usclient.mib into your NMS's MIB database is different for each NMS. If you plan on using Microsoft's SNMP implementation you can find a program named **mibcc.exe** in the Windows 2000 Resource Kit. This program is used to compile source MIB files into a **MIB.bin** file that is used by the SNMP Service. For other NMSs, the process of incorporating the two MIB files will have to be determined by reading the specific NMS documentation or contacting the NMS vendor.

Local Incremental Database

UPSTREAM can now maintain a database of files it has backed up which can be used to determine the files to be included in an incremental backup or phase 1 of a merge backup. This is most useful in UNIX systems where there is no archive bit for incremental determination.

The UPSTREAM database contains the fully qualified file name for each file, along with a file's modification date, size and attributes. For UNIX the file's attributes contain the file's permissions. Thus when a file changes either in content or attributes it will be included in the next UPSTREAM backup.

This facility is also available in PC operating systems. Since there is an archive bit and since there is some overhead we recommend the continued use of the archive bit for most customers. However, for situations where you are backing up data where the archive bit is not available for update (BCVs, Volume Shadow Service, etc.), this method is highly recommended.

There is a new parameter: **INCRDB,** which if set to Y will cause UPSTREAM to begin using the database. INCRDB can only be set to Y for the first time for a first-time full or a full merge. To allow easy migration to this new method, if the option is set for a full merge and there is not an existing database, the current method (incremental file or archive bit) will be used to determine the files to back up and the database will be created.

You can enable this option in the UPSTREAM Director in both the Backup and Restore tabs. Press the **Options** button, and the **Miscellaneous** tab. Check the **Use Incremental Database Facility** checkbox to enable.

You must have the INCRDB option set to Y for all backups and restores using this profile so that the files are properly recorded in the database. When you restore files, the files are also written to the database so they are not included in the next backup.

The database is stored in the UPSTREAM work path with the file name of the backup profile with an "idb" extension. This file must be preserved between backups and can potentially grow quite large so sufficient space must be available in the work path.
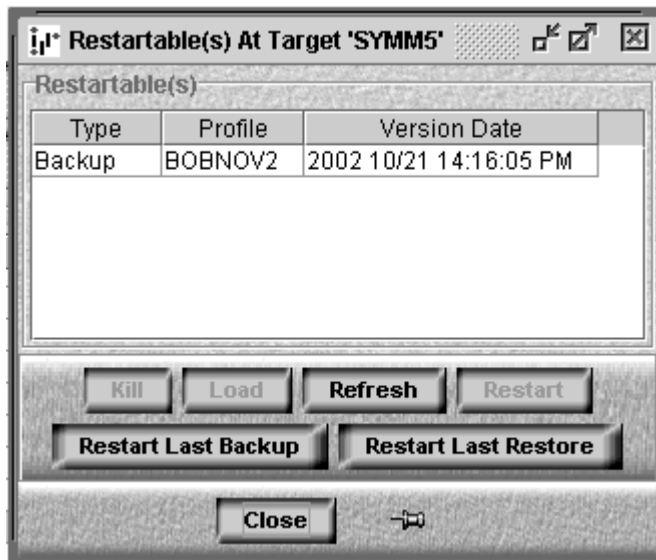
Other Director Updates

Backup/Restore Restarts

The UPSTREAM Director now supports manually restarting pending backups or restores.

In the Director, in the Target window, press the **Re-startable(s)...** button:

If you have version 3.2.0a or lower of UPSTREAM, an error message will be displayed: *Unable to determine restart information at target* , the list will not be filled in and a message will be logged in UPSTREAM.

If you have a version 3.2.0b or higher of UPSTREAM on the target system, then a list will be displayed of all pending restartable backups or restores.

- To restart one, highlight the entry in the list and press the **Restart** button.

- To delete restart information highlight the entry in the list and press the **Kill** button.

- To see details on the original specifications for the backup or restore, highlight the entry and press the **Load** button; you will be brought to the backup or restore screens and all of the fields will be filled with the values specified for this backup or restore.

The **Restart Last Backup** and **Restart Last Restore** buttons allow you to restart the most recent backup or restore without having to highlight the entry in the list. These are the action buttons you should use with older UPSTREAM client versions.

Parameter (.DAT) File Management For Targets

Previously, the parameter files could only be saved on the local PC running the Director. Now they can be saved on the target for which they are intended to be used. This is better logistically because the Parameter File

Dialog now actually summarizes, displays and loads parameter files by target location. By isolating them in this fashion, better management of parameter files can be achieved by an administrator.

Both the Parameter List window and the Parameter Save dialog now have the option of loading/saving at a target PC. Two radio buttons are supplied to choose between viewing/loading/saving from your local PC or at a selected target. Also, in both, the default directory (usually the Upstream install directory on the PC target server) is displayed; in the title bar across the top of the Parameter List window and next to the label "Current working directory" in the Save dialog. The current directory is still always changed for ALL dialogs by using the "Set Directory..." button of the Parameter List window.

Setting A Target

We have introduced a new and convenient way in which the target is set for any action such as Backup or Restore. The "Set Target..." button on each action panel has now been replaced with a drop down list of targets to select right there in an action panel. You no longer need to bring up the "Target System List" to choose and set the target for your action - although this still remains a valid way to set the target.

Also, previously you were required to "activate" the target system entry in the Target System List by getting it's status with the "Status" button in order to set a target in the first place - this restriction has been removed. You may now select and set a target regardless of it's status of "Up" or "Down". The Director will do this automatically upon performing the intended action.

Translation Tables At Targets

Some pair of translation tables is always used when viewing Profile Versions (backups) in the restore action version content view window. It is very important that the translation tables that are loaded are the ones that were used for the particular backup you are viewing - if not, the characters and file names may not be legible in the viewer. Previously, translation tables were loaded by awkwardly setting them in the Options for a restore action in order to view the backup files properly. Even worse, the translation table files were read from the local PC the Director was running on - which was probably not where the actual translation tables used for the backup resided. The tables usually had to be copied from the Target where it was used during backup time to the PC the Director was running on.

The Director now loads and sets the translation tables from the target system itself. There is a new section in the menu "Options" ---> "Version View..." dialog for doing this. Also, when a parameter file is loaded for use, the translation tables specified in it are now also loaded from the target system.

Target File Browsing

The Director now contains a "File Viewer" for a target system. This is most often needed when setting up a backup action. The browser can show drives, shares, directories and files for selection. There is a new "Browse" button next to the file specification field of the backup action panel and another one in the "Target System List" window to use.

For Novell target file systems, Target Service Agents and Target Service Providers can also be displayed in the "My Network" -> "Novell Information" drill down. This can be helpful in setting up Novell profiles in a SMS cluster server environment.

Run Job

The run job action of UPSTREAM is now supported from the Director. All of the features of the traditional client are available from the Director Run Job tab.

Minor Changes

Some of the minor changes in this release include:

☐ (v3.2.1) The default LISTENFORREMOTE parameter for all operating systems is now N. This means that parameter files created with new installations of UPSTREAM will not process remote requests and will not register. This addresses errant registration of attended UPSTREAM systems.

☐ (v3.2.0b) (Oracle AIX) 64-bit RMAN library support for AIX 5L.

☐ (v3.2.0b) (Windows 2000/XP) UPSTREAM no longer requires that file and printer sharing be installed or the administrative shares (C$, D$...) be enabled for agent installation.

☐ (v3.2.0b) (NotesR5) You can now restore databases to a alternate destination and have incrementals applied successfully.

☐ (v3.2.0b) You can force a restore to begin at a given point in the restore process by specifying the restore normally and then, using the parameter **RESTARTLASTFILE**, specify the file you wish to continue the restore after. You might use this if you wish to restart a restore with a different version of UPSTREAM. This parameter is not available on screens; you must enter it manually in a parameter file, the command line or in a mainframe job. UNC names must be specified with !:\ rather than \\.

☐ (v3.2.0b) You can specify for the LOCALBACKUPDIR parameter a '*' to have UPSTREAM use the first local backup disk found, or a '!' to have UPSTREAM use the first empty disk. Use the '*' in cases where you don't want to have to be aware of the local backup disk name, for the simplest use of UPSTREAM/SOS. Use the '!' in cases where you are running multiple simultaneous backups or restores, are not preserving backups on the disk and wish to have each backup or restore use a separate local backup disk.

☐ (v3.2.0b) (UNIX) When FIFOs or device files are included in a backup spec, they will no longer be skipped but will be included in a backup. Device files are restored with their original major/minor numbers. Along with the existing file system support, UPSTREAM is now capable of operating system recovery when performed in an operating system recovery mode where the system is booted from an alternate disk or manner. As different UNIX environments are certified for operating system recovery, the UPSTREAM Rescuer label is applied.

☐ (v3.2.0b) A new parameter **SPEC** can be used to replace the separate SPECNUMBER and FILES parameters. Note that parameters that follow a given SPEC parameter are valid for that given file specification.

☐ (v3.2.0b) Non-communications performance tests can be host initiated and the results reported back with CONV=WAIT.

☐ (v3.2.0b) (NLM) The Novell NLM version of UPSTREAM now supports multiple simultaneous executing instances of UPSTREAM. Workpath, restarts, multiple host and Director requests and a number of other issues are automatically handled. This feature was previously available with the Windows and UNIX versions and is now available in the NLM version. To use it, you must have NetWare 5 or higher or NetWare 4.x with the Winsock extensions and the LONG name space loaded. See the Running More Than One Copy chapter in the UPSTREAM manual for a description of this feature.

Some differences include:

- The console UNLOAD command will unload the "parent" UPSTREAM (the initial copy used to start "child" copies) and all child copies. To stop a given child copy, either kill it from the mainframe or the Director status screens or press the [ESC] key in the screen of the process you wish to stop.

- If you terminate the "parent" UPSTREAM, then all active conversations on all children copies are automatically terminated.

☐ (v3.2.0b) (UNIX) A new file spec parameter, **CHANGEDIRATTRIBS**. If set to Y, UPSTREAM will change owner/group/mode for existing directories; otherwise existing directory attributes will be preserved.

☐ (v3.2.0b) (UNIX) A number of minor changes in the way that attributes are restored:

- If the owner/group name was not found at backup time, UPSTREAM in previous versions used the current UPSTREAM user (root); now the UID/GID from the backup is used.

- USEUID and USEGID now work in all UNIX operating systems; in previous versions the feature was only available for USS.

☐ (v3.2.0b) (UNIX) SINGLEFS now also applies for restores. You can now restore those files from a given file system by specifying any path in the file system and the parameter **SINGLEFS** Y. The file spec will be used as specified, but those files in subdirectories, lower in the path from other file systems will be automatically excluded. To support this feature, UPSTREAM now includes in the backup details stored on the mainframe, separate file specs which indicate the highest level of each file system included in the backup. So to use the SINGLEFS restore feature you must have performed at least one backup using this new version. Note that SKIPBACKUPSCAN keeps this feature from operating.

☐ (v3.2.0b) (NLM) The WINSOCK TCP/IP interface is now the default. However, if WINSOCK is not installed, UPSTREAM will automatically use Berkeley sockets. WINSOCK is required for multi-user NLM functionality. You can force Berkeley sockets by setting the environment variable **USNOWINSOCK** to any value.

☐ (v3.2.0b) (UNIX) UPSTREAM will now back up the top directory entry for file systems which are not directly supported. This allows other file systems to be mounted immediately in a disaster recovery situation.

☐ (v3.2.0b) JOBRETURNCODE map can now accept the encoding of ?:? to have client return codes not interpreted (passed through without change) to the mainframe on the completion of a job.

☐ (v3.2.0b) (Windows) The .NET IIS metabase files are now being backed up as part of the system state.

☐ (v3.2.0b) (Windows) The Windows Management Instrumentation repository will be backed up whenever you backup the **%SystemRoot%\system32\WBEM** directory, as a single file named **UPSTREAM_WMI_Repository_Backup.bin**. The repository is restored whenever you include this file in the restore.

☐ (v3.2.0b) (Windows) The Removable Storage manager database will be backed up, whenever you backup the **%SystemRoot%\system32\NtmsData\Export** directory, as two files named **NtmsData** and **NtmsReg**. The database is restored whenever you include these files in the restore.

☐ (v3.2.0b) (NLM) You can use the dot '.' to indicate the current server for excludes as well as includes.

☐ (v3.2.0b) (NLM) A new parameter SMSTSA allows the TSA name in a Novell Profile to be overridden.

☐ (v3.2.0b) HPUX 10.20 is no longer supported.

Technical Specifications

□ Previous version:

FDR/UPSTREAM PC version 3.2.1 is a production release updating production release version 3.2.0a.

□ Operating systems affected by this upgrade:

All

□ FDR/UPSTREAM MVS release prerequisites:

3.2 is recommended, particularly if you have UPSTREAM/SOS, but all prior releases of FDR/UPSTREAM MVS will operate.

□ Problem resolutions:

- (v3.2.0b) File transfer receive errors #1902 (Parse Structure Overflow) have been resolved.

- (v3.2.0b) (Windows 2000) Problems where disaster recovery restores would complete but certain services would not properly start have been resolved.

- (v3.2.0b) "Socket operation on non-socket" error message will no longer occur if status port or in port socket errors occur at startup.

- (v3.2.0b) (UNIX) Brackets and backslashes are properly included in backups, migrations and restores.

- (v3.2.0b) (NLM) Dot '.' works correctly when specified as the work path in the configurator for personalization.

- (v3.2.0b) (UNIX) Hard links work consistently with NFS mounted drives.

- (v3.2.0b) (UNIX) Hard link restores are now correctly restartable.

- (v3.2.0b) (Windows) MVS "COMMUNICATIONS ERROR" messages will no longer occur when UPSTREAM reports a large number of skipped file messages.

- (v3.2.0b) (Director) Restore replace options generate correct parameter values.

- (v3.2.0b) (Linux) UPSTREAM personalization security is available.

- (v3.2.0b) (MS SQL v7) MS SQL backups on cluster servers now find the pipe file correctly.

- (v3.2.0b) (Win32) The Windows 2000 IIS metabase file is now correctly identified and included in the system state.

- (v3.2.0b) (Win32) Previously unexplained "Connection Reset by Peer" TCP/IP error messages will no longer occur.

- (v3.2.0b) (NLM) UPSTREAM will use the directory of the program started from as the default directory for unqualified file names such as report names, translation tables, etc.

- (v3.2.0b) (UNIX) When a "Run Job" is requested from the host, UPSTREAM will no longer report return code 127 - which was due to a missing SHELL environment variable as it now uses a proper shell default (/bin/sh).

□ Who should upgrade:

Users who need one of the problem resolutions or enhancements.

☐ New configuration parameters:

None.

☐ New overall parameters:

Name	Default	Required	Description
INCRDB	N	No	If set to Y, UPSTREAM will maintain a local database of files backed up in the work path.
JOBWAITTIMELIMIT	0	No	The number of milliseconds that UPSTREAM should wait for the job to complete. Not supported by ULTra.
NOTIFYEVENTS	769	No	If a NOTIFYTARGETS parameter is specified, the conditions in which a notification will occur. This is a bit map, where you add the notification values: 1 : Notify if the action failed 2 : Notify if the action succeeded 4 : Notify for any errors 8 : Notify for any warnings 16 : Notify for any informational messages 256: Attach the log if the action failed and value 1 is specified. 512: Attach the report if the action failed, value 1 is specified and reporting is enabled. 1024: Attach the log if the action succeeded and value 2 is specified. 2048: Attach the report if the action succeeded, value 2 is specified and reporting is enabled.
NOTIFYFAILUREATTACHMENT	None	No	The file name to send if a file should be attached on operation failure. You must also specify a NOTIFYTARGETS file.
NOTIFYSUCCESSATTACHMENT	None	No	The file name to send if a file should be attached on operation success. You must also specify a NOTIFYTARGETS file.
NOTIFYTARGETS	None	No	The name of the notification targets file name if you wish to enable notification.
RESTARTLASTFILE	None	No	The file you wish your restore to start after. Allows manual restore restarts. UNC names must be specified with !:\ rather than \\
SMSTSA	None	No	Allows you to override the TSA name in the Novell Profile. Must be complete: <server>.NetWare File System
SPEC	None	No	Can be used in place of the combination of SPECNUMBER and FILES.

☐   New file spec parameters:

Name	Default	Required	Description
CHANGEDIRATTRIBS	Y	No	If set, UPSTREAM will change owner/group/mode for existing directories; otherwise existing directory attributes will be preserved.

☐   New environment variables:

Name	Default	Description
USFILEFLUSH (Win32)	Not defined	If defined, UPSTREAM will flush all writes to disk at file close. Only recommended on Windows machines when writing to a NetWare drive as it degrades performance when not needed.
USNOTESRECOVERYFLAGS	Not defined (determined by UPSTREAM)	Allows you to set recovery flags for applying Lotus Notes transaction logs to restored databases. A bit map with values: 1 : Wait 2 : ZAP DBIID 4 : Refresh backup 8 : Recover at point in time 16: ZAP replica ID 32: ZAP DBIID if necessary
USNOWINSOCK (NLM only)	Not defined	If defined, UPSTREAM will only use BSD sockets for TCP/IP. This will also disable use of the attach manager facility.
USTCPCONTROLTIMEOUT	600	A number of seconds that an UPSTREAM control message (deallocate, send error, etc.) will wait until it is timed out.
USTRUNCONCLOSE	Not defined	If defined, On restores UPSTREAM will wait until file close before removing any prior file contents. This will disable sparse files.

Update - FDR/UPSTREAM v3.2.1a

FDR/UPSTREAM Workstation/Server v3.2.1a is a minor release of FDR/UPSTREAM primarily for problem resolutions. The UNIX versions were not generated for this release and still show v3.2.1 on the CD.

Technical Specifications

☐ Previous version:

   FDR/UPSTREAM PC version 3.2.1a is a production release updating production release version 3.2.1.

☐ Operating systems affected by this upgrade:

   All

☐ FDR/UPSTREAM MVS release prerequisites:

   3.2 is recommended, particularly if you have UPSTREAM/SOS, but all prior releases of FDR/UPSTREAM MVS will operate.

☐ Problem resolutions:

   - (Windows) Full system restores will now operate correctly.

   - (Windows) If you did not set "Automatically adjust clock for daylight savings time changes" and your system is set for a daylight savings time zone in Windows UPSTREAM was incorrectly storing your NTFS file times and not properly handling the change into daylight savings time. Twice a year, your system was effectively performing first-time fulls whenever you did a full merge backup. When you upgrade to this version, if it is daylight savings time, you will see one final effective first-time full. Afterwards files will be stored correctly.

   - (Novell) If a NDS backup or restore is requested and there is a problem accessing NDS, UPSTREAM will fail the backup or restore.

   - (Director) File dates/times from Windows NTFS systems now correctly adjust for daylight savings time.

   - (Restarts) UPSTREAM will use the specified security information when you perform a restart, thus allowing CONV=WAIT backups/restores to be restarted from the Director.

☐ Who should upgrade:

   Users who need one of the problem resolutions or enhancements.

☐ New configuration parameters:

None.

☐ New overall parameters:

None.

☐ New file spec parameters:

None

☐ New environment variables:

None

Update - FDR/UPSTREAM v3.2.1b

FDR/UPSTREAM Workstation/Server v3.2.1b is a minor release of FDR/UPSTREAM primarily for problem resolutions. The UNIX versions were not generated for this release and still show v3.2.1 on the CD.

Technical Specifications

☐ Previous version:

> FDR/UPSTREAM PC version 3.2.1b is a production release updating production release version 3.2.1a.

☐ Operating systems affected by this upgrade:

> All

☐ FDR/UPSTREAM MVS release prerequisites:

> 3.2 is recommended, particularly if you have UPSTREAM/SOS, but all prior releases of FDR/UPSTREAM MVS will operate.

☐ Problem resolutions:

- (v3.2.1b) (Windows 2000) PC199E errors starting full system backups should no longer occur.
- (v3.2.1b) UPSTREAM registers correctly. Fixes a problem introduced in v3.2.1a.
- (v3.2.1b) Backups using 8 character backup profile names with the INCRDB facility now generate file names correctly.
- (Windows) Full system restores will now operate correctly.
- (Windows) If you did not set "Automatically adjust clock for daylight savings time changes" and your system is set for a daylight savings time zone in Windows UPSTREAM was incorrectly storing your NTFS file times and not properly handling the change into daylight savings time. Twice a year, your system was effectively performing first-time fulls whenever you did a full merge backup. When you upgrade to this version, if it is daylight savings time, you will see one final effective first-time full. Afterwards files will be stored correctly.
- (Novell) If a NDS backup or restore is requested and there is a problem accessing NDS, UPSTREAM will fail the backup or restore.
- (Director) File dates/times from Windows NTFS systems now correctly adjust for daylight savings time.
- (Restarts) UPSTREAM will use the specified security information when you perform a restart, thus allowing CONV=WAIT backups/restores to be restarted from the Director.

☐ Who should upgrade:

Users who need one of the problem resolutions or enhancements.

☐   New configuration parameters:

None.

☐   New overall parameters:

None.

☐   New file spec parameters:

None

☐   New environment variables:

None

Update - FDR/UPSTREAM v3.2.1c

FDR/UPSTREAM Workstation/Server v3.2.1c is a minor release of FDR/UPSTREAM primarily for problem resolutions. The UNIX versions were not generated for this release and still show v3.2.1 on the CD.

Technical Specifications

☐ Previous version:

> FDR/UPSTREAM PC version 3.2.1c is a production release updating beta release 3.2.1b and production release version 3.2.1a.

☐ Operating systems affected by this upgrade:

> All

☐ FDR/UPSTREAM MVS release prerequisites:

> 3.2 is recommended, particularly if you have UPSTREAM/SOS, but all prior releases of FDR/UPSTREAM MVS will operate.

☐ Problem resolutions:

- (v3.1.2c) (Windows 2000) Windows File Protection messages will no longer occur after UPSTREAM backups.
- (v3.2.1b) (Windows 2000) PC199E errors starting full system backups should no longer occur.
- (v3.2.1b) UPSTREAM registers correctly. Fixes a problem introduced in v3.2.1a.
- (v3.2.1b) Backups using 8 character backup profile names with the INCRDB facility now generate file names correctly.
- (Windows) Full system restores will now operate correctly.
- (Windows) If you did not set "Automatically adjust clock for daylight savings time changes" and your system is set for a daylight savings time zone in Windows UPSTREAM was incorrectly storing your NTFS file times and not properly handling the change into daylight savings time. Twice a year, your system was effectively performing first-time fulls whenever you did a full merge backup. When you upgrade to this version, if it is daylight savings time, you will see one final effective first-time full. Afterwards files will be stored correctly.
- (Novell) If a NDS backup or restore is requested and there is a problem accessing NDS, UPSTREAM will fail the backup or restore.
- (Director) File dates/times from Windows NTFS systems now correctly adjust for daylight savings time.

- (Restarts) UPSTREAM will use the specified security information when you perform a restart, thus allowing CONV=WAIT backups/restores to be restarted from the Director.

☐ Who should upgrade:

Users who need one of the problem resolutions or enhancements.

☐ New configuration parameters:

None.

☐ New overall parameters:

None.

☐ New file spec parameters:

None

☐ New environment variables:

None